

REMARKS/ARGUMENTS

35 USC §103

The Office rejected **claims 1-2, 4-7, 9-11, and 13-20** as being obvious over Lee et al. (U.S. Pat. No. 6,354,105) in view of Campbell (U.S. Pat. No. 5,771,712). The applicant respectfully disagrees, especially in view of the amendments herein.

As amended, claim 1 (and with that claims 2-7) require "...a separator that is configured to allow separation of a cooled low pressure feed gas *at about feed gas pressure* into a liquid portion and a vapor portion...", which is clearly not taught or suggested by Lee. Indeed, if Lee's separator would operate at feed gas pressure, the entire slip stream configuration would be inoperable for its intended purpose as Lee requires at least a portion of the feed gas to be compressed to so gain refrigeration duty.

The office also stated that Lee would teach a demethanizer that would be "*...configured to receive the absorber bottoms product as lean reflux....*" Such assertion is factually incorrect as the absorber bottoms in Figure 4 of Lee is fed to the demethanizer as a feed stream at warm temperatures. Based on at least these observations, it should be apparent that not all of the claim elements of claim 1 are present.

Moreover, with respect to the examiner's argument that it would have been obvious to combine Campbell's teaching of liquid expansion for feed gas cooling with Lee's configuration to "...thereby allow formation of cooled low pressure feed gas in order to substantially reduce the utility requirements...needed for the recovery of the desired products...", the applicant notes the following. First, *cooling of the feed gas is already satisfactorily achieved* by use of exchanger 120 and reboiler 80 for the main stream 14, and coolers 20 and 24 for the slip stream 12. Thus, there is absolutely *no motivation in Lee's configuration to provide additional refrigeration*. Second, it is entirely *unclear to the applicant which of the utility requirements in Lee would be reduced by additional feed gas cooling* (according to Campbell) as alleged by the examiner. In case the office maintains such argument, clarification is respectfully requested. Third, it should be noted that if one would implement an expansion device à la Campbell to the separator 34a of Lee, the likely result would be freezing of the BTZ components that are separated out in 34a (see column 8, line 61 *et seq.*). Thus, the proposed modification would likely render Lee inoperable

for the intended purpose. As dependent claims 2-7 incorporate all elements of amended claim 1, the same considerations as pointed out above apply. Consequently, in view of the above defects and arguments, the office's rejections of claims 1-2 and 4-7 as being obvious over Lee and Campbell should be withdrawn.

With respect to amended claim 9 (and with that claims 10-15) it should be noted that the claims expressly require "...a third cooler that is configured to cool at least part of the vapor portion...", which is despite the examiner's statement to the contrary clearly not present in Lee. While the third cooler 26 does cool a vapor portion (of the slip stream), that *vapor portion is clearly not the vapor portion of the cooled feed gas from the separator as presently claimed*. Likewise, the claims also require that the pressure reduction device is configured to expand the cooled vapor portion. Again, the examiner's proposed vapor portion is the vapor portion of the slip stream and not the vapor portion from the feed separator. Remarkably, the examiner properly identified the primary and secondary coolers (120, 80) and downstream separator (34), and also properly identifies 'the vapor portion' from the separator in Figure 1, but fails to recognize that the separator from which the cooled and expanded vapor portion in Figure 4 is derived is an entirely different separator (34a). Regarding the combination of Lee with Campbell with respect to claim 9 (and claims dependent thereon), the same considerations as provide above apply. Therefore, in view of the above defects and arguments, the office's rejections of claims 9-11 and 13-15 as being obvious over Lee and Campbell should be withdrawn.

Regarding amended claim 16 (and dependent claims 17-20) it should be noted that the claims expressly require "...a separator that is configured to receive a cooled low pressure feed gas *at about feed gas pressure*...", wherein "... *refrigeration duty of the absorber and demethanizer* are provided at least in part by *expansion of a liquid portion* of the cooled low pressure feed gas *and an expansion of a vapor portion*...", which is not taught by the cited art. Moreover, the examiner once again appears to argue that a combination of Lee and Campbell would be motivated by the anticipated substantial reduction in energy requirements. As already pointed out above, such assertion is unsupported at best and the applicant respectfully requests clarification.

Still further, it should be noted that claim 16 and claims dependent thereon expressly require that the vapor portion and liquid portion are at about feed gas pressure as they come from the separator. Such limitation is contrary to Lee's teaching as Lee expressly requires compression of the feed gas to a higher pressure, which is then used to provide for refrigeration duty. Omission of such compression would render Lee inoperable, which clearly teaches against such modification and combination with Campbell. Consequently, in view of the above defects and arguments, the office's rejections of claims 9-11 and 13-15 as being obvious over Lee and Campbell should be withdrawn.

The Office also rejected **claims 3, 12, and 14** as being obvious over Lee et al. (U.S. Pat. No. 6,354,105) in view of Campbell (U.S. Pat. No. 5,771,712) and admitted prior art. The applicant again respectfully disagrees, especially in view of the amendments herein.


Most significantly, as claim 3 depends on amended claim 1, the same arguments and defects as provided above apply and are not reiterated herein. A combination with admitted prior art fails to remedy these defects. Similarly, as claims 12 and 14 depend on amended claim 9, the same arguments and defects as provided above apply and are not reiterated herein. Once again, a combination with admitted prior art fails to remedy these defects. Therefore, claims 3, 12, and 14 should not be deemed obvious over the cited art.

Request For Allowance

Claims 1-7 and 9-20 are pending in this application. The applicant requests allowance of all pending claims.

Respectfully submitted,
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